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ABSTRACT

A position paper examines the importance of educational technology in today's educational system and makes recommendations to the New York state government in the form of a policy statement and proposed action. The prime concerns are individualized instruction, cost effectiveness, use at all levels, equity for disadvantaged students, and occupational education. While recognizing the strengths and weaknesses of educational technology, the report recommends increased use of technology in the instructional process, a study of requirements for training of professionals in the field, and new strategies for improving the quality, and quantity and cost of instructional technology materials. In order to carry out the recommendations, the New York State Education Department is taking steps in planning and implementation, regional systems, funding, cooperative development, evaluation, and research and development. The report calls for existing resources of educational film libraries, libraries of video tape materials, networks of educational television, and a proposed plan for a computerized educational information system to be drawn together in a comprehensive effort in educational technology. (HB)

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INSTRUCTIONAL TECHNOLOGY

A Statement of Policy
and Proposed Action
by the
REGENTS OF THE
UNIVERSITY OF THE
STATE OF NEW YORK

THE STATE EDUCATION DEPARTMENT
ALBANY
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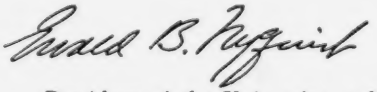
FOREWORD

The contributions of technology to the achievements of mankind in space exploration, communications, transportation, medicine, and industrial and agricultural production are widely acknowledged. Although some argue that the technological revolution may be producing harmful side effects such as dehumanization and environmental abuse, it is difficult to imagine how the world's burgeoning population could sustain itself without major reliance on various applications of technology. Trends in population growth and urbanization make continuing development of technology a necessity for maintenance of reasonable living standards and even survival. It is perhaps a paradox that the intellects and skills of those responsible for the great accomplishments in the field of technology have been developed in an education system which is little touched by technology.

Today the education system that has produced the individual skills and talents that have made American technology first in the world is itself troubled. The changing characteristics of society, the rising expectations of greater abundance and security, and the realization that only through education can these expectations be achieved have created a dilemma of major proportions. The Regents are convinced that, with the help of technology, education of improved quality can be more economically produced to meet the demand.

We urge that this statement be given careful study by the public and by educators and that the Governor and Legislature provide the support necessary for its implementation.



President of the University and
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INTRODUCTION

Instructional technology is a planned system which provides a broad range of electro-mechanical means of telecommunications, computer systems, and other devices coupled with the activities of students and teachers to achieve specific educational objectives. Experiment and practice in schools, colleges, military training centers, and business have established that a planned and intelligent use of technology can provide learning and cultural experiences economically. Research results indicate that technological sciences can provide the teacher, parent, and student with far more precise analyses of individual learning interest, need, and achievement than has been possible ever before. Systems which provide instructional prescriptions for each student — complete with objectives, materials, and achievement monitoring tests — are now existent. The broad spectrum of aural-visual media from transparencies through television continues to provide increasing proof of its value in education. New multimedia instructional systems, designed to be self-teaching with only additional teacher help for individual needs, are coming into use at levels from primary to postgraduate.

The emergence of the television cassette format, telecommunications satellites, the development of cable television, and the recent regulations of the Federal Communications Commission favoring educational use of commercially owned cable channels, provide solid foundations for building a direct linkage between information storage centers and the teachers and learners in school and at home.

These elements, coupled with the existing educational television network and the educational communications installations in Boards of Cooperative Educational Services, school districts and post-secondary institutions across the State make the pursuit of new, dynamic uses of instructional technology a realistic and attainable objective.

OBJECTIVES

The broad objectives of the application of technology to education are increased learning opportunity and effectiveness, improvement in the quality and control of educational opportunity, and a greater volume of learning for dollars invested. The following statements elaborate on the broad objectives by indicating prime concerns:

1. *Individualized instruction.* Instructional technology must be developed to accommodate all levels of interest and intellect among the student population. It must provide the means for matching the most appropriate instruction with individual needs and interests.
2. *Cost effectiveness.* Instructional technology must be applied to increase the productivity of education. It must provide the methods and the means to relieve instructional personnel of routine and repetitive functions so that teacher-learner contact hours can be focused on the personal aspects of education.
3. *Use at all levels.* Instructional technology should provide the mechanisms for greater achievement and cost-effective enlarged opportunity for the entire educational system.
4. *Equity for disadvantaged students.* Instructional technology must be used to create more equitable learning opportunities for disadvantaged students in particular. Nonprint media and materials must be developed and used to help overcome the deficiencies in reading which impede learning by disadvantaged students.
5. *Occupational education.* Instructional technology should provide more convenient and abundant job training and occupational retraining opportunities for the adult population at home, at work, and in the school.

RECOMMENDATIONS

Instructional technology has desirable strengths upon which learning achievements and positive attainments in understanding can be built.

The Strengths

1. *Attractive and familiar.* Modern media and machines are attractive and familiar to the majority of learners they can serve.
2. *Overcomes isolation.* Much of the use of media technology provides means for bridging the barriers of language, and of economic, geographical, or cultural isolation, as in the inner city and rural areas.
3. *Efficient access and distribution.* Technology's potential for mass distribution and improved access to resources provides the potential for much greater efficiency in the instructional process.
4. *Knowledge and experience.* There is a significant amount of knowledge and experience in the use of currently available technological tools and processes.

Instruction technology has certain weaknesses which must be overcome in realizing full potential.

Correcting the Weaknesses

1. *Software needed.* Greater emphasis must be placed on methods and materials than on the well-developed devices of instructional technology. Pump-priming funding must be available to develop new materials, methods, and systems, and to encourage and guide investment from the commercial sector into the development of a large variety and quantity of materials required.
2. *Limited spread.* Support from Federal, State, and business sources, which has provided for experimentations in individual institutions, must be used to disseminate proven systems.
3. *Resistance to change.* Encouragement and assistance must be provided to help educators adjust to changing roles created by the introduction of instructional technology.
4. *Technological diversity.* Instructional technology is so diverse that few persons are sufficiently expert in all areas to understand and select the particular type of technology that can contribute satisfactorily to a particular instructional problem.

The assessment of these strengths and weaknesses leads to the following recommendations.

Recommendation 1. The Regents acknowledge the present strengths and weaknesses of instructional technology and are convinced that potential contributions of technology to the improvement of the quality and cost of education merit substantial financial support for further development. The Regents recommend increased effort to research, develop, demonstrate, disseminate, and evaluate the uses of new media and technology as part of the instructional process.

Trained Personnel

In the last century there has been an increasing interest in various instructional aids, devices, and materials. Many educators have been alert to resources, from print materials to computer programs, that might expedite instruction and learning more effectively. They have worked to incorporate these resources into the design of schools, colleges, and other types of learning environment.

As the variety and quantity of print and nonprint instructional resources have increased, the requirement for trained and informed managers who can create, select, and use such resources also has grown. Schools and colleges have found often that where such management capability has been neglected, devices and instructional materials have not been efficiently used. The cost, complexity, and educational potential of instructional resources as they exist today are too great to be casually considered. The great variety of possible

applications of technological resources and materials requires the attention of personnel who are trained and experienced in their selection, and who can plan and manage their uses most effectively.

Recommendation 2. The Regents recommend that a study of requirements for the training of professionals for the field of instructional technology be initiated. Should new certification areas be recommended on the basis of that study, the Regents will consider the desirability for certification regulations to insure improved management of instructional technology resources.

Organizing the Use of Instructional Technology

The Regents recognize that the diversity of interest in and the variety of applications of instructional technology have proved to be of great benefit to instruction. At the same time, the breadth and diversity of development has made it difficult to recommend a technological system completely responsive to all institutions and their various instructional needs. Improved information sharing about instructional technology is desirable and must be developed.

A unified approach is needed to improve the development and production of instructional resources. Procedures for identifying materials and systems needs and for economical purchasing should be established.

Recommendation 3. The Regents recommend broad participation in the further development and refinement of technological systems. Further, the Regents recommend and support the development of new strategies and organizational patterns which will promote closer cooperation among educational institutions, business and industry, and government for the purpose of improving the quality, quantity, and cost of instructional technology materials.

The uses and applications of technology require the development of new materials and new approaches to enhance learning and culture. In order to carry out the above recommendation, the State Education Department will take the following steps:

1. *Planning and implementation.* To plan systems using technology to meet all educational priorities so that improved quality of learning and cost-effectiveness are achieved.
2. *Regional systems.* To develop arrangements for the use of such regionalized systems as those existing in elementary and secondary education, higher education, and cultural education for the introduction and development of instructional technology.
3. *Funding.* To consider all possible combinations for using funds available from all Federal, State, and local sources for instructional technology and for the development of materials for such technological systems.

4. *Cooperative development.* To work with educational and industrial organizations in cooperative ventures which will aid the promotion, use, and efficient dissemination of instructional technology.
5. *Evaluation.* To design and implement a system to assess the extent to which instructional technology uses improve educational quality and increase cost effectiveness of learning. To maintain an updated information system through continuation of surveys and analyses on the progress of instructional technology.
6. *Research and development.* To maintain and improve a research and development component of the Department that will maintain progress in the identification and creation of technological systems of instruction.

CONCLUSION

The Regents believe that instructional technology is an essential part of the State's educational program. New York State has installed libraries of educational films; has established a library of video tape materials and accompanying teacher- and self-study guides which are available without restriction to all institutions of learning, both public and private; has established a network of community educational television outlets; and has provided funding to local school districts to install educational television. The Education Department has prepared a long range plan for the establishment of a computerized educational information system which will increasingly serve instructional purposes and is developing a system for improving cost-effectiveness through instructional technology. The task is to draw all of these resources together in a comprehensive effort to make New York State preeminent in the Nation in instructional technology.

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